REMARKS

Applicants intend this response to be a complete response to the Examiner's **28 December 2005** Non-Final Office Action. Applicants have numbered the paragraphs in their response to correspond to the paragraph numbering in the Office Action for the convenience of the Examiner. Please note that related paragraphs are combined in paragraph number ranges, *e.g.*, 2-3.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the human body encasing (i.e. the upper body portion, the arms, etc.) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the resilient cover of the invention along with the specified shape of the encasing (i.e. the upper body portion, the arms, etc.) as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d).

3. Figures 1-24 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Applicant will submit appropriate drawing corrections. Applicant has canceled claims relating to simulated body part, without prejudice. Applicant reserves the right to file a continuation

application with appropriated drawings showing body parts. However, Applicant notes that the location of the devices is not relevant to any issue of infringement.

Specification

5. The disclosure is objected to because of the following informalities: in the description of Figures 29-32 on p. 8, an extra 'i' is present in the phrase "the present i invention." Appropriate correction is required.

Applicant has amended the Figure description on page 8. In the process, Applicant noted that there is no Figure 28. Applicant has renumber the figures in the brief description and in the detailed description sections. Applicant, therefore, respectfully request withdrawal of these objections.

Claim Rejections - 35 USC § 101

6. **Claim 15** is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The Examiner contends as follows:

> The phraseology "where the arterial pulse is detected and monitored by a medical professional" refers to non-statutory subject matter (i.e., the human being). Alternate suggested wording: --where the arterial pulse is adapted to be detected and monitored by a medical professional--.

Applicant thanks the Examiner for her kind suggestion, which Applicant has adopted. Applicant has amended claim 15 to evidence this suggestion, and, therefore, requests withdrawal of this section 101 rejection.

Claim Rejections - 35 USC § 102

7. **Claims 1, 8-11, and 14** are rejected under 35 U.S.C. 102(b) as being anticipated by Abrahamson et al. (US Patent No. 3,520,071).

The Examiner contends as follows:

> Abrahamson discloses an apparatus for simulating a pulse and correlated heart beat of an animal, the apparatus comprising a playback device for generating a first electronic signal corresponding to a pulse (col. 3, line 73) and a second electronic signal corresponding to a correlated heart beat (col. 3, line 73), a tactile pulse simulator for receiving the pulse signal and generating a pressure pulses simulating an arterial pulse discernible by touch (col. 8, lines 39-44, lines 48-52) and

an audio simulator for receiving the correlated heart beat signal (col. 9, lines 40-45) and recreating the heart beat to be heard through a stethoscope (col. 4, lines 8-9).

Regarding claim 8, Abrahamson discloses that the tactile pulse simulator comprises a collapsible tube apparatus (col. 8, lines 39-47).

Regarding claim 9, Abrahamson discloses that the tactile pulse simulator and the audio simulator are housed within a housing (col. 6, lines 10-11; col. 9, lines 72-74).

Regarding claim 10, Abrahamson discloses that the tactile pulse simulator comprises a resilient cover covering a tactile switch capable of generating pulses simulating the arterial pulse (col. 9, lines 57-72).

Regarding claim 11, Abrahamson discloses that the housing comprises a simulated upper part of a human body including a simulated chest portion and simulated arm portion (Figure 1).

Regarding claim 14, Abrahamson discloses that the tactile pulse simulator is within a first housing (193) and the audio simulator is within a second housing (190) (Figure 12).

Applicant respectfully disagrees with the Examiner understanding of Abrahamson et al. The heart sound and pulse sounds of Abrahamson et al are designed to be listened to through small head set transducers. "The operating table 60 also contains audio transducers which produce a sound for detection by the student in his anestesiological procedures. Such actuators consist of heart sound and brachial artery monitoring in the form or two **small head set transducers 180 and 190** whose tubular outlets are located in the left chest area and the right arm respectively." Abrahamson et al at Col. 8 bridging 9. Abrahamson et al **does not disclose tactile devices** for feeling pulses with ones fingers. Abrahamson et al is not directed to cardiovascular diagnostics using a stethoscope and a finger or pair of fingers. Abrahamson et al is absolutely incapable of generating pulses that can be sensed by touch.

Because Abrahamson et al **do not disclose** devices that generate a simulated pulse that is sensed by touch and not by the ear, Abrahamson et al cannot anticipate the claims of this invention. Therefore, Applicant respectfully requests withdrawal of this 102(b) rejection.

Claim Rejections - 35 USC § 103

8. **Claims 2 and 16-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Abrahamson in view of Takashina et al. (US Patent No. 6,461,165).

The Examiner contends as follows:

Abrahamson discloses an apparatus for simulating a right side pulse and correlated heart beat of an animal, the apparatus comprising a playback device for

generating a first electronic signal corresponding to the right side pulse and a second electronic signal corresponding to a correlated heart beat (col. 3, line 73; col. 9, lines 57-72), a tactile pulse simulator for receiving the right pulse signal and generating a pressure pulses simulating a right side arterial pulse discernible by touch (col. 8, lines 39-44, lines 48-52), and an audio simulator for receiving the correlated heartbeat signal (col. 9, lines 40-45) and recreating the heartbeat to be heard through a stethoscope (col. 4, lines 8-9).

Abrahamson does not disclose the simulation of a left side pulse along with an electronic signal corresponding to the left side pulse and a tactile pulse simulator for receiving the left pulse signal and generating a pressure pulses simulating a left side arterial pulse discernible by touch. However, Takashina teaches the placement of electric pulse generators (col. 1, lines 63-67) on both sides of the body, more specifically both arms (Figure 2, items 5, 6, 7, and 8). It would have been obvious to one of ordinary skill in the art at the time of invention to place the structure described by Abrahamson on both sides of a manikin as taught by Takashina to create a complete simulation, as opposed to a half-body simulation, of the human heart beat and pulse.

Regarding claim 16, Abrahamson discloses that the tactile pulse simulator comprises a collapsible tube apparatus (col. 8, lines 39-47).

Regarding claim 17, Abrahamson discloses that the tactile pulse simulators and the audio simulator are housed within a housing (col. 6, lines 10-11; col. 9, lines 72-74), where the housing comprises a simulated upper part of a human body including a simulated chest portion, a simulated right arm portion and a simulated left arm portion (Figure 1).

Again, the Examiner is just flat incorrect on in her reading of Abrahamson et al. Abrahamson et al lacks a basic teaching necessary for sustaining a rejection against the present claims. Abrahamson et al do not disclose, teach or even suggest devices that generate a pulse that can be felt. As a further example, Abrahamson et al states:

> The generator which is used in driving the brachial-artery **sound source** is selected by comparatives within the computer 300. If the cuff pressure in pressure cuff 193 shown in the sphygmomanometer instrument arrangement on the manikin's right arm 102, as shown in FIG. 12, is above diastolic but below systolic, a comparator will select the spurting pulse generator 192. **When the cuff pressure reaches or exceeds systolic, both sound generators 191 and 192 are disconnected.** Abrahamson et al at Col. 9, ll. 45-54.

Thus, Abrahamson et al lacks a fundamental teaching to permit is use as an anticipatory reference or as an obviousness reference.

Abrahamson et al combination with Takashina et al does nothing to eliminate this deficiency in Abrahamson et al. Takashina et al do disclose a pulse generator, but the generator is a pneumatic generator and not a generator that is purely electronic. In fact, Takashina et al does not even suggest

a non-pneumatic embodiment. Moreover, pneumatic systems are extremely difficult to correlate so that the heart sounds heard through the stethoscope are exactly correlated to an associated pulse. Much work is required to determine pneumatic pulse propagation through a system of tubes. Additionally, pressure on the devices will change the response of the system, making the correlation of pneumatic heart sound and pulses very difficult. The present invention is based on electronic devices. They receive electronic signals. The playback system does not have to be concerned with differences in propagation times or other pneumatic difficulties as the devices are electrically driven and information is traveling at nearly light speed. Thus, the present invention is far superior from an construction, engineering and operational perspective.

Because the combination of Abrahamson et al and Takashina et al does not disclose, teach or even suggest a system of electrical devices designed to generate correlated heart sounds to be heard with arterial pulses to be felt, the combination does not render the present claims obvious. Applicant, therefore, respectively requests withdrawal of this section 103(a) rejection.

9. **Claims 12-14 and 18-24** is rejected under 35 U.S.C. 103(a) as being unpatentable over Abrahamson in view of Takashina, further in view of Elwell (US Patent No. 3,298,132).

The Examiner contends as follows:

> Regarding claim 20, Abrahamson discloses an apparatus for simulating an arterial pulse and correlated heart beat of a human, the apparatus comprising:
>
> a housing including a simulated upper human body portion having a chest portion, a right arm portion, and a left arm portion (Figure 1);
>
> a playback device for generating a first electronic signal corresponding to the right side arterial pulse and a second electronic signal corresponding to a correlated heart beat (col. 3, line 73; col. 9, lines 57-72);
>
> a first tactile pulse simulator for receiving the right pulse signal and generating a pressure pulse simulating a right side arterial pulse discernible by touch (col. 8, lines 39-44, lines 48-52); and
>
> an audio simulator for receiving the heart beat signal and generating an audible recreation of the correlated heart beat (col. 9, lines 40-45), so that the heart beat can be heard through a stethoscope (col. 4, lines 8-9).
>
> Abrahamson does not disclose that the tactile pulse simulator is located at a lower inner arm position in the right arm of the housing. However, Takashina teaches that the pulse generators can be located at the brachial artery or radial artery positions (col. 4, lines 63-67). It would have been obvious to one of ordinary skill in the art at the time of invention to place the pulse generator at an inner position on the lower arm in order to simulate the pulse at a position on the human body where it is commonly know that the pulse is the easiest to detect.

Abrahamson, as modified by Takashina, does not disclose the simulation of a left side arterial pulse along with an electronic signal corresponding to the left side pulse and a tactile pulse simulator for receiving the left pulse signal and generating a pressure pulse simulating a left side arterial pulse discernible by touch, where the second tactile pulse simulator is located at an inner wrist position in the left arm of the housing. However, Takashina teaches the placement of electric pulse generators (col. 1, lines 63-67) on both sides of the body, more specifically both arms (Figure 2, items 5, 6, 7, and 8). It would have been obvious to one of ordinary skill in the art at the time of invention to place the structure described by Abrahamson on both sides of a manikin as taught by Takashina to create a complete simulation, as opposed to a half-body simulation, of the human heart beat and pulse.

Abrahamson, as modified by Takashina, does not specifically disclose that the audio simulator is located in the chest portion of the housing. However, Elwell teaches placing the audio simulator at this location (col. 4, lines 30-45). It would have been obvious to one of ordinary skill in the art at the time of location to modify the manikin of Abrahamson/Takashina to place the audio simulator in the chest portion of the housing in order to mimic the pulse sound more realistically, as generating from the heart.

Regarding claim 12, Abrahamson does not expressly disclose that the tactile pulse simulator is located in the arm portion at a wrist portion corresponding to a location used by medical professionals to detect and monitor the patient's arterial pulse. However, Takashina teaches that the pulse generators can be located at the brachial artery or radial artery positions (col. 4, lines 63-67). It would have been obvious to one of ordinary skill in the art at the time of invention to place the pulse generator at an inner position on the lower arm in order to simulate the pulse at a position on the human body where it is commonly know that the pulse is the easiest to detect. Abrahamson, as modified by Takashina, does not expressly disclose that the audio simulator is located within the chest portion. However, Elwell teaches placing the audio simulator at this location (col. 4, lines 30-45). It would have been obvious to one of ordinary skill in the art at the time of location to modify the manikin of Abrahamson/Takashina to place the audio simulator in the chest portion of the housing in order to mimic the pulse sound more realistically, as generating from the heart.

Regarding claim 13, Abrahamson, as modified by Takashina and Elwell, discloses that the tactile pulse simulators comprise a resilient cover covering the tactile switch capable of generating pulses simulating the arterial pulse (col. 3, lines 62-67; col. 9, lines 57-72).

Regarding claim 14, Abrahamson discloses that the tactile pulse simulator comprises a resilient cover covering a tactile switch capable of generating pulses simulating the arterial pulse (col. 9, lines 57-72). Abrahamson does not expressly disclose that the first housing simulates a human wrist or that the tactile pulse simulator is located at a position in the wrist corresponding to a position in the patient where the arterial pulse is detected and monitored. However, Takashina teaches that the pulse generators can be located at the brachial artery or radial artery positions (col. 4, lines 63-67). It would have been obvious to one of ordinary skill in the art at the time of invention to place the pulse generator at the wrist in order to

simulate the pulse at a position on the human body where it is commonly know that the pulse is the easiest to detect.

Regarding claim 18, Abrahamson, as modified by Takashina, teaches that the tactile pulse simulators are located in the right and left arm portion at a wrist portion corresponding to a location used by medical professionals to detect and monitor a the patient's arterial pulse (Figure 2 and col. 4, lines 63-67 of Takashina) Although neither Abrahamson nor Takashima specifically disclose that the audio simulator is located within the chest portion, Elwell teaches this concept (col. 4, lines 30-45). It would have been obvious to one of ordinary skill in the art at the time of location to modify the manikin of Abrahamson/Takashina to place the audio simulator in the chest portion of the housing in order to mimic the pulse sound more realistically, as generating from the heart.

Regarding claim 21, Abrahamson, as modified by Takashina and Elwell, discloses that the tactile pulse simulator comprises a collapsible tube apparatus (col. 8, lines 39-47).

Regarding claim 22, Abrahamson, as modified by Takashina and Elwell, discloses that the tactile pulse simulators and the audio simulator are housed within a housing (col. 6, lines 10-11; col. 9, lines 72-74), where the housing comprises a simulated upper part of a human body including a simulated chest portion, a simulated right arm portion and a simulated left arm portion (Figure 1).

Regarding claim 23, Abrahamson, as modified by Takashina and Elwell, teaches that the tactile pulse simulators are located in the right and left arm portion at a wrist portion corresponding to a location used by medical professionals to detect and monitor a the patient's arterial pulse (Figure 2 and col. 4, lines 63-67 of Takashina) and the audio simulator is located within the chest portion (col. 4, lines 30-45 of Elwell).

Regarding claims 19 and 24, Abrahamson, as modified by Takashina and Elwell, discloses that the tactile pulse simulators comprise a resilient cover covering the tactile switch capable of generating pulses simulating the arterial pulse (col. 3, lines 62-67; col. 9, lines 57-72).

Again, the Examiner is just flat incorrect on in her reading of Abrahamson et al. Abrahamson et al lacks a basic teaching necessary for sustaining a rejection against the present claims. Abrahamson et al do not disclose, teach or even suggest devices that generate a pulse that can be felt. As a further example, Abrahamson et al states:

> The generator which is used in driving the brachial-artery **sound source** is selected by comparatives within the computer 300. If the cuff pressure in pressure cuff 193 shown in the sphygmomanometer instrument arrangement on the manikin's right arm 102, as shown in FIG. 12, is above diastolic but below systolic, a comparator will select the spurting pulse generator 192. **When the cuff pressure reaches or exceeds systolic, both sound generators 191 and 192 are disconnected.** Abrahamson et al at Col. 9, ll. 45-54.

Thus, Abrahamson et al lacks a fundamental teaching to permit is use as an anticipatory reference or as an obviousness reference.

Abrahamson et al combination with Takashina et al does nothing to eliminate this deficiency in Abrahamson et al. Takashina et al do disclose a pulse generator, but the generator is a pneumatic generator and not a generator that is purely electronic. In fact, Takashina et al does not even suggest a non-pneumatic embodiment. Moreover, pneumatic systems are extremely difficult to correlate so that the heart sounds heard through the stethoscope are exactly correlated to an associated pulse. Much work is required to determine pneumatic pulse propagation through a system of tubes. Additionally, pressure on the devices will change the response of the system, making the correlation of pneumatic heart sound and pulses very difficult. The present invention is based on electronic devices. They receive electronic signals. The playback system does not have to be concerned with differences in propagation times or other pneumatic difficulties as the devices are electrically driven and information is traveling at nearly light speed. Thus, the present invention is far superior from an construction, engineering and operational perspective.

The addition of Elwell is just another pneumatic system that does not disclose, teach or suggest an electronic system, especially one where the heart sounds that are to be heard are correlated with arterial pulses that are to be felt.

Because the combination of Abrahamson et al, Takashina et al and Elwell does not disclose, teach or even suggest a system of electrical devices designed to generate correlated heart sounds to be heard with arterial pulses to be felt, the combination does not render the present claims obvious. Applicant, therefore, respectively requests withdrawal of this section 103(a) rejection.

10. Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abrahamson in view of Takashina.

The Examiner contends as follows:

> Abrahamson discloses an apparatus for simulating a pulse and correlated heart beat of a human, the apparatus comprising a playback device for generating an electronic signal corresponding to the right side pulse and a second electronic signal corresponding to a correlated heart beat (col. 3, line 73; col. 9, lines 57-72); a first housing including a first tactile pulse simulator for receiving the right side arterial pulse signal and generating a pressure pulses corresponding to a right arm arterial pulse discernible by touch (col. 8, lines 39-44, lines 48-52); and a second housing including an audio simulator for receiving the heart beat signal and generating an

audible recreation of the correlated heartbeat (col. 9, lines 40-45) and designed to be heard through a stethoscope position on a surface of the housing (col. 4, lines 8-9).

Abrahamson does not disclose a second electronic signal corresponding to the left side pulse and an additional housing including a second tactile pulse simulator for receiving the left side arterial pulse signal and generating a pressure pulses corresponding to a left arm arterial pulse discernible by touch. However, Takashina teaches the placement of electric pulse generators (col. 1, lines 63-67) on both sides of the body, more specifically both arms (Figure 2, items 5, 6, 7, and 8). It would have been obvious to one of ordinary skill in the art at the time of invention to place the structure described by Abrahamson on both sides of a manikin as taught by Takashina to create a complete simulation, as opposed to a half-body simulation, of the human heart beat and pulse.

Regarding claim 26, Abrahamson, as modified by Takashina, discloses that the tactile pulse simulator comprises a collapsible tube apparatus (col. 8, lines 39-47).

Regarding claim 27, Abrahamson, as modified by Takashina and Elwell, discloses that the tactile pulse simulators comprise a resilient cover covering the tactile switch capable of generating pulses simulating the arterial pulse (col. 3, lines 62-67; col. 9, lines 57-72).

Again, the Examiner is just flat incorrect on in her reading of Abrahamson et al. Abrahamson et al lacks a basic teaching necessary for sustaining a rejection against the present claims. Abrahamson et al do not disclose, teach or even suggest devices that generate a pulse that can be felt. As a further example, Abrahamson et al states:

> The generator which is used in driving the brachial-artery **sound source** is selected by comparatives within the computer 300. If the cuff pressure in pressure cuff 193 shown in the sphygmomanometer instrument arrangement on the manikin's right arm 102, as shown in FIG. 12, is above diastolic but below systolic, a comparator will select the spurting pulse generator 192. **When the cuff pressure reaches or exceeds systolic, both sound generators 191 and 192 are disconnected.** Abrahamson et al at Col. 9, ll. 45-54.

Thus, Abrahamson et al lacks a fundamental teaching to permit is use as an anticipatory reference or as an obviousness reference.

Abrahamson et al combination with Takashina et al does nothing to eliminate this deficiency in Abrahamson et al. Takashina et al do disclose a pulse generator, but the generator is a pneumatic generator and not a generator that is purely electronic. In fact, Takashina et al does not even suggest a non-pneumatic embodiment. Moreover, pneumatic systems are extremely difficult to correlate so that the heart sounds heard through the stethoscope are exactly correlated to an associated pulse. Much work is required to determine pneumatic pulse propagation through a system of tubes. Additionally, pressure on the devices will change the response of the system, making the correlation

of pneumatic heart sound and pulses very difficult. The present invention is based on electronic devices. They receive electronic signals. The playback system does not have to be concerned with differences in propagation times or other pneumatic difficulties as the devices are electrically driven and information is traveling at nearly light speed. Thus, the present invention is far superior from an construction, engineering and operational perspective.

Because the combination of Abrahamson et al and Takashina et al does not disclose, teach or even suggest a system of electrical devices designed to generate correlated heart sounds to be heard with arterial pulses to be felt, the combination does not render the present claims obvious. Applicant, therefore, respectively requests withdrawal of this section 103(a) rejection.

Applicant believes that nothing in the cited references is sufficient to anticipate or render obvious the claims of this invention. None of these references relate to electrically driven, non-pneumatic pulse generating systems. It is the electronic aspect of this invention that permits reliable correlations of heart sound that are to be heard with arterial pulses that are to be felt. Applicant, therefore, respectfully urges allowance of these claims.

If it would be of assistance in resolving any issues in this application, the Examiner is kindly invited to contact applicant's attorney Robert W. Strozier at 713.977.7000

Date: **April 12, 2006**

Respectfully submitted,

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